Docket No.: AMB-131-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/770,617	Confirmation No.: 2301
Inventor	:	Wolfgang Eis, et al.	
Filed	:	February 2, 2004	
Title	:	Device and Method for Producing Glass Fibers	
TC/A.U.	:	1731	
Examiner	:	John M. Hoffmann	
Customer No.	:	24131	

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL
AMENDED

S i r :

Responsive to the Notice of Non-Compliant Appeal Brief dated August 6, 2007, appellants herewith submit a corrected *Brief on Appeal*. This is an appeal from the final rejection in the Office action dated February 6, 2007, finally rejecting claims 1, 3-27 and 29.

Real Party in Interest:

This application is assigned to SCHOTT AG of Mainz, Germany formerly Schott Glas. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

There are no prior related appeals or interference proceedings or judicial proceedings which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. No related appeals or interference proceedings or judicial proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1, 3-27 and 29 are rejected and are under appeal. Claims 2 and 28 were cancelled in an amendment dated February 13, 2006. Claims 30-45 were withdrawn from consideration.

Status of Amendments:

No claims were amended after the final Office action. *A Notice of Appeal* was filed on May 4, 2007.

Summary of the Claimed Subject Matter:

As stated in the second paragraph on page 1 of the specification of the instant application, the invention relates to a device for producing glass fibers from preforms, in particular multicomponent glass fibers, with a fiber furnace having heating bushes, with a follow-up device for holding and feeding the preforms in the heating bushes and a drawing and sizing installation for passing on the glass fibers to a making-up device. The invention further relates to a method for producing glass fibers from preforms, wherein preforms are introduced by a follow-up device into the heating bushes of the fiber furnace, and the glass fibers drawn from the heating bushes are cooled in a downstream cooling zone and are passed on via a drawing installation to a making-up device.

The subject matter of each independent claim is described in the specification of the instant application. Examples explaining the subject matter defined in each of the independent claims, referring to the specification by page and line numbers, and to the drawings, are given below.

Independent device claim 1 recites a device *(Fig. 1, ref. # 1, page 28, line 21)* for producing optical glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)*, comprising:

a fiber furnace *(Figs. 1 and 2, ref. # 2, page 28, line 21)* having heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* disposed as a matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* for simultaneously receiving a number of preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)*, said matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* having mutually parallel first matrix axes and mutually parallel second matrix axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)* disposed at an angle α of less than 90° with respect to one another, and each of said first matrix axes intersecting each of said second matrix axes *(Fig. 2, ref. # 23 and 24, page 32, lines 8-10)* within a boundary of said matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)*, and said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* being disposed at respective crossing points of said first and second axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)*;

a follow-up device *(Fig. 1, ref. # 3, page 28, line 22)* configured to hold and feed the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* into said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)*;

a drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)* configured to receive glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* drawn from the preforms in said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)*

such that the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* lie next to one another as a band when being received by said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*.; and

a making-up device *(Fig. 1, ref. # 4, page 28, lines 23-24)* configured to receive the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* from said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*.

Independent device claim 11 recites a device *(Fig. 1, ref. # 1, page 28, line 21)* for producing optical glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)*, comprising:

a fiber furnace *(Figs. 1 and 2, ref. # 2, page 28, line 21)* having heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* disposed as a matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* for simultaneously receiving a number of preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)*, each of said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* having at least one heating element *(Figs. 3 and 4, ref. # 27, page 33, lines 2-3)* and each of said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* having at least one diffuser *(Figs. 3 and 4, ref. # 29, page 33, lines 5-6)* provided between said at least one heating element *(Figs. 3 and 4, ref. # 27, page 33, lines 2-3)* and a respective one of the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* for

diffusing a heating radiation , said matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* having mutually parallel first matrix axes and mutually parallel second matrix axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)* disposed at an angle α of less than 90° with respect to one another and said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* being disposed at respective crossing points of said first and second axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)*;

a follow-up device *(Fig. 1, ref. # 3, page 28, line 22)* configured to hold and feed the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* into said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)*;

a drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)* configured to receive glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* drawn from the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* in said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* such that the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* lie next to one another as a band when being received by said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*; and

a making-up device *(Fig. 1, ref. # 4, page 28, lines 23-24)* configured to receive the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* from said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*.

Independent device claim 14 recites a device *(Fig. 1, ref. # 1, page 28, line 21)* for producing optical glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)*, comprising:

a fiber furnace *(Figs. 1 and 2, ref. # 2, page 28, line 21)* having heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* disposed as a matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* for simultaneously receiving a number of preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)*, each of said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* having a respective flow device configured for creating a laminar air flow in each of said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)*, said matrix configuration *(Fig. 1, ref. # 22, page 32, lines 3-4)* having mutually parallel first matrix axes and mutually parallel second matrix axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)* disposed at an angle α of less than 90° with respect to one another and said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* being disposed at respective crossing points of said first and second axes *(Fig. 2, ref. # 23 and 24, page 32, lines 4-5)*;

a follow-up device *(Fig. 1, ref. # 3, page 28, line 22)* configured to hold and feed the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* into said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)*;

a drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)* configured to receive glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* drawn from the preforms *(Fig. 1, ref. # 11, page 29, lines 11-13)* in said heating bushes *(Figs. 1-4, ref. # 15, page 30, line 1)* such that the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* lie next to one another as a band when being received by said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*; and

a making-up device *(Fig. 1, ref. # 4, page 28, lines 23-24)* configured to receive the glass fibers *(Fig. 1, ref. # 5, page 28, lines 24-25)* from said drawing and sizing installation *(Fig. 1, ref. # 3, page 28, line 21)*.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1, 3-27, and 29 particularly point out and distinctly claim the subject matter which appellant regards as the invention under 35 U.S.C. § 112, second paragraph.

2. Whether or not claims 1, 3-11, 18-19, 21-23, 27 and 29 are obvious over Gouronnec (U.S. Patent No. 4,373,943) alone, or in view of Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

3. Whether or not claims 1 and 12 are obvious over Sanghera et al. (U.S. Patent No. 5,735,927) (hereinafter "Sanghera") in

view of Gouronnec (U.S. Patent No. 4,373,943) Watts (U.S. Patent No. 4,204,852), Jensen (U.S. Patent No. 5,062,876), and Ishihara et al. (U.S. Patent Publication No. 2002/0078715 A1) (hereinafter "Ishihara") under 35 U.S.C. § 103.

4. Whether or not claims 1, 11, 13-17, and 24 are obvious over Sanghera (U.S. Patent No. 5,735,927) in view of Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

5. Whether or not claims 1, 18, and 20 are obvious over Oh (U.S. Patent No. 6,053,013) in view of Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) under 35 U.S.C. § 103.

6. Whether or not claims 25-26 are obvious over Lee (U.S. Patent Publication No. 2003/0079501 A1) or Gouronnec (U.S. Patent No. 4,373,943), Watts (U.S. Patent No. 4,204,852) and Jensen (U.S. Patent No. 5,062,876) in view of Holschlag (U.S. Patent No. 3,304,163) and optionally Watts (U.S. Patent No. 4,204,852) under 35 U.S.C. § 103.

Argument:

Whether or not claims 1, 3-27, and 29 meet the requirements of 35 U.S.C. § 112, second paragraph.

Claims 1, 3-27, and 29 do meet the requirements of 35 U.S.C. § 112, second paragraph:

More specifically, the Examiner alleges that the terms "follow-up", "making-up", are not **defined** in the **specification** and have no art-recognized meaning. As is seen from the following remarks, the Examiner's allegations are in error.

The term "follow-up device" is the translation of the German word *Nachführvorrichtung* from the provisional application of which the instant application claims the benefit of. This kind of device holds and guides the preforms in the heating bushes, as the examiner correctly states. However, the term *Nachführen* also connotes a correlation between the insertion of the preforms into the heating bushes and the drawing of the fibers, with the *Nachführvorrichtung* inserting the preforms into the heating bushes in such a way as to compensate for the material loss due to the melting of the glass fibers. In this sense, the device follows the material lost during the melting operation of the performs.

Therefore, the Examiner's allegation on page 4 of the Office action, that "the follow-up device does not appear to follow anything", is not correct. Furthermore, as already noted several times in the responses, the follow-up device is **defined** on page 1, lines 12-23 and on page 29, lines 10-26. On page 29 it is disclosed that the follow-up device includes a supporting plate 13 that is guided in a guide 14 through the use of a driving spindle, preferably through the use of a ballscrew, and is driven by a geared motor. Therefore, the follow-up device **is defined in the specification**. Also, patent law permits applicants to be their own lexicographers. See, i.e., Fromson v. Advance Offset Plate, Inc. et al., 219 U.S.P.Q. 1137, 1140 (Fed. Cir. 1983). With this authorization, appellants used the phrase "follow-up device" **as defined in the specification of the instant application**. As seen from the above-given remarks, the Examiner's allegation with respect to the term "follow-up device" is in error.

The term "making-up device" is a generic term for the German term *Konfektioniervorrichtung* from the provisional application of which the instant application claims the benefit of. This serves for confecting the glass fibers into bundles on spools. For purposes of the invention, it is immaterial whether a fiber bundle is wound onto one or more

spools, or several bundles onto one or more spools. The only thing relevant to the invention is that the production of the bundles and the take-up onto spools occurs without feedback. That is to say, there is no feedback onto the preceding sections of the multiple-fiber drawing installation by way of the glass fibers during the drawing process. Furthermore, as noted in the responses, the making-up device is **defined** on page 28, lines 22-25. On page 28 it is disclosed that the making-up device includes a spool 7, which makes up or assembles the produced glass fibers or optical fibers 5 as fiber bundles 6. Therefore, the making-up device **is defined in the specification**. Also, patent law permits applicants to be their own lexicographers. See, i.e., Fromson v. Advance Offset Plate, Inc. et al., 219 U.S.P.Q. 1137, 1140 (Fed. Cir. 1983). With this authorization, appellants used the phrase "making-up device" **as defined in the specification** of the instant application. As seen from the above-given remarks, it is respectfully believed that the Examiner's allegation with respect to the term "making-up device" is in error.

The Examiner alleges that the term bush is indefinite as to its meaning. This is not correct. More specifically, the specification explicitly discloses the "bush" on page 32, line 22 to page 35, line 9 and in Figs. 3 and 4. Furthermore, the Examiner disregards appellants' previous

remarks. Particularly, as stated in the previous responses the term "bush" is defined in Webster's Third New International Dictionary as a removable **lining or sleeve** of metal or other material that is **inserted** or screwed **into an opening** to limit its size, resist wear or erosion, **or serve as a guide**. Furthermore, the definition of bush from Webster's Third New International Dictionary is: bushing. Bushing is defined by the same dictionary as: a removable lining or sleeve of metal or other material that is inserted or screwed into an opening to limit its size, resist wear or erosion, or serve as a guide **(Appellants are merely providing a definition of the bushing, a term well known by engineers and persons of ordinary skill in the art, so that the definition can be recognized by the Examiner and the Board. The definition is not evidence, as alleged by the Examiner in the Notice of Non-Compliant Appeal Brief)**. Accordingly, the term "**bush**" is **synonymous** with the term "**bushing**". Therefore, the term "bush" refers to a heated guide which is held in a matrix structure, which is exactly what is disclosed in the specification and what is shown in the drawings. Therefore, contrary to the Examiner's allegation on page 6 of the Office action dated August 29, 2006, a person of ordinary skill in the art **would not** be at a complete loss in determining what is meant by the claims.

On page 8 of the final Office action dated February 6, 2007, the Examiner incorrectly alleges that "Applicant has not acted as their own lexicographer". More specifically, as noted above, the terms "making-up device" and "follow-up" device have been **explicitly defined** in the noted portions of the specification. Accordingly, it is kindly requested that the honorable Board disregard the Examiner's erroneous comments.

On page 8 of the final Office action dated February 6, 2007, the Examiner incorrectly alleges that "Examiner sees nothing at page 1, lines 12-23, page 29, lines 10-26, page 28, lines 22-25 or anywhere else in the specification that shoes (sic) that applicant has set forth any definition with clarity, deliberateness and precision." More specifically, as noted above, the terms "making-up device" and "follow-up device" have been explicitly defined with reasonable clarity, deliberateness and precision. Therefore, the Examiner's allegation with respect to the definitions, is in error. Accordingly, it is kindly requested that the honorable Board disregard the Examiner's erroneous comments.

As seen from the above-given remarks, the claims do meet the requirements of 35 U.S.C. §112, second paragraph.

Whether claims 1 and 11 are obvious over Gouronnec alone, or in view of Watts and Jensen under 35 U.S.C. §103.

Claims 1, 3-11, 18-19, 21-23, 27 and 29 are not obvious over Gouronnec alone, or in view of Watts and Jensen under 35 U.S.C. §103:

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, *inter alia*:

> the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes.

The Gouronnec reference discloses a multiple fiber forming machine. Gouronnec discloses a furnace that has drawing laboratories. The furnace may have laboratories that are configured radially around a central axis in an axial symmetry, but can also have linearly arranged laboratories.

In the amendment filed on June 12, 2006, claim 1 was amended to include the limitation that second matrix axes are mutually parallel along with the first matrix axes (likewise claims 11 and 14 also include this limitation). In the Examiner's drawing on page 3 of the Office action dated March 10, 2006, the second matrix axes are diagonal and intersect one another, thus they are not mutually parallel.

The Examiner alleges that on page 9 of the Office action dated August 29, 2006, that "it is noted that a regular 4 X 4 matrix reads on the claims because there are rows at 45 degree angles-such as shown in the last Office action." The Examiner's allegation is in error. As noted above, claims 1, 11, and 14 of the instant application require that the second matrix axes are mutually parallel. The "second matrix axes" of the Examiner's drawing from the Office action dated March 10, 2006, **are not mutually parallel**. Therefore, the 45 degree angle shown does not meet the limitation of the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, as recited in claims 1, 11, and 14 of the instant application. Accordingly, the Examiner's allegation with respect to the drawing in the "last Office action", are in error.

Moreover, on pages 8 and 9 of the final Office action dated February 6, 2007, the Examiner alleges that "as to the arguments that the previous drawing does not have sets of axes which are mutually parallel. This argument is true. However, the rejection is still proper for the other reasons of record. For example a 4x4 (square matrix) would have the parallel axis. As would a 5x5 or substantially any other matrix larger than a 2x2."

While such configurations may have mutually parallel axes any such configurations do not necessarily have mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90°, as recited in claims 1, 11, and 14 of the instant application. Therefore, the Examiner's allegations appear to be pointless and misplaced.

The Jensen reference discloses a bushing that has multiple tips. The heating bush according to the invention differs substantially from the tips of Jensen. Thus the present heating bush arrangement must also be distinguished from the tip arrangement according to Jensen. The term "bushing" according to Jensen appears to be derived from "ejection bushing plate". Such a "bushing plate" comprises "tips". In Jensen, completely different technical prerequisites exist,

starting with the different melting processes. Therefore, the tips of Jensen are completely different than the limitation of a "heating bush" as recited in the claims of the instant application, which is a bush with at least one heating device. Accordingly, Jensen does not disclose a matrix configuration as recited in claim 1 of the instant application.

Furthermore, it is noted that the Examiner's comments on page 6 of the Office action August 29, 2006 that "the claims need to be interpreted in the glass-manufacturing art-which as (sic) a long history of referring to a bushing as is done in Jensen", is entirely correct when considering the prior art. Accordingly, the Examiner's remarks support the fact that Jensen does not disclose a heating bush in a matrix configuration, as recited in the claims of the instant application.

The Watts reference does not disclose any matrix configuration in the apparatus for producing a glass fiber bundle.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

The Gouronnec reference discloses heating laboratories that are disposed in an axial symmetry or in a linear fashion. Gouronnec does not disclose mutually parallel first and second matrix axes disposed at an angle of less than 90° with respect to one another and heating bushes being disposed at respective crossing points of the first and second axes. This is contrary to the invention of the instant application as claimed, in which the matrix configuration have mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersect each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes are disposed at respective crossing points of the first and second axes.

As seen from the above-given remarks, the Jensen and Watts references do not disclose a matrix configuration for heating bushes. Therefore, Jensen and Watts do not make up for the deficiencies of Gouronnec.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

Moreover, on page 9 of the Office action dated February 6, 2007 the Examiner stated that "it does not matter that Jensen does not have particular claim features-**the rejection does not assert that Jensen** has the features that Applicant argues that Jensen lacks". Then the Examiner further alleges that "it is argued that the references do not show or teach the matrix configuration. Examiner disagrees, **Jensen discloses such**." Accordingly, the Examiner explicitly contradicts himself first he alleges that the rejection does not assert Jensen discloses the matrix configuration. Then he alleges that Jensen does disclose the matrix configuration. This is very confusing and does not make sense. Accordingly, it is kindly requested that the honorable Board disregard the Examiner's erroneous comments.

Since claim 1 is allowable, dependent claims 3-10, 18-19, 21-23, 27 and 29 are allowable as well.

The following remarks pertain to claim 11.

On page 9 of the Office action dated August 29, 2006, the Examiner alleges that "claims 9-11, 18-19. 21-23, 29 and 27 would have been obvious for the reason of record. Official Notice has been taken previously. Since there has been no traversal, such is now being treated as admitted prior art." Appellants respectfully disagree with the Examiner. More specifically, as noted in the prior responses claim 1 was believed to be allowable. Therefore, appellants did not specifically comment on the Examiner's remarks. However, since claims 11 and 14 were made independent appellants commented as follows.

Appellants **do traverse the Examiner's Official Notice**. The Official Notice is not prior art for the following reasons. The Examiner's remarks, which pertain to the disclosure of Gouronnec in column 2, lines 57-60, pertain to furnaces and not to heating bushes, as recited in the claims of the instant application. The construction of the heating bushes is entirely different than the furnace that is disclosed in Gouronnec. Therefore, the Examiner's comments with respect

to diffusers are not applicable when considering the heating bushes of the present invention. Accordingly, the Examiner unfounded allegations do not serve as prior art. Furthermore, contrary to the Examiner's allegation on page 9 of the Office action dated October 13, 2005, there is no "receptor" on line 59 of column 2 in Gouronnec. Therefore, the Official Notice does not have any merit and is not admitted prior art.

As seen from the above-given remarks, appellants have adequately traversed the Official Notice. Therefore, it is noted that the Examiner's remarks on page 10 of the final Office action dated February 6, 2007 are misplaced.

Claim 11 calls for, *inter alia*:

> a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, as recited in claim 11 of the instant application.

The Gouronnec reference discloses a heating furnace having heating laboratories that are disposed in an axial symmetry or in a linear fashion. Gouronnec does not disclose that a furnace has individual heating bushing each having a heating element and a diffuser. This is contrary to the invention of the instant application as claimed, in which a fiber furnace has heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the

heating bushes has at least one heating element and each of the heating bushes has at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration has mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another.

The Jensen and Watts references do not disclose a matrix configuration for heating bushes which each have a heating element and a diffuser. Therefore, Jensen and Watts do not make up for the deficiencies of Gouronnec.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

Whether claim 1 is obvious over Sanghera in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103.

Claims 1 and 12 are not obvious over Sanghera in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103:

The Sanghera reference discloses a method for producing core/clad glass optical **preforms** using hot isostatic pressing. Sanghera does not disclose a matrix configuration for disposing heating bushings.

The Ishihara reference discloses an apparatus for drawing optical fiber. Ishihara does not disclose a matrix configuration for disposing heating bushings.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks with respect to the rejection on page 8 of the Office action, the Gouronnec,

Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Sanghera and Ishihara do not disclose a matrix configuration for heating bushings. Therefore, Sanghera and Ishihara do not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

Whether claims 1, 11, and 14 are obvious over Sanghera in view of Gouronnec, Watts and Jensen under 35 U.S.C. §103.

Claims 1 and 24 are not obvious over Sanghera in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103:

The Sanghera reference discloses a method for producing core/clad glass optical **preforms** using hot isostatic pressing. Sanghera does not disclose a matrix configuration for disposing heating bushings. Sanghera does not disclose that heating bushings have a heating element and a diffuser.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks the Gouronnec, Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Sanghera does not disclose a matrix configuration for heating bushings. Therefore, Sanghera does not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

Since claim 1 is believed to be allowable, dependent claim 24 is believed to be allowable as well.

The following further remarks pertain to claims 11, 13, and 16 not being obvious over Sanghera in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103:

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of the heating bushes having at least one heating element and each of the heating bushes having at least one diffuser provided between the at least one heating element and a respective one of the preforms for diffusing a heating radiation, the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α

of less than 90° with respect to one another, as recited in claim 11 of the instant application.

As seen above with the regard to the comments made with respect to the rejection, Gouronnec, Jensen and Watts do not disclose the heating bushings as recited above.

The Sanghera reference does not disclose a matrix configuration for heating bushes which each have a heating element and a diffuser. Therefore, Sanghera does not make up for the deficiencies of Gouronnec, Jensen, and Watts.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

Since claim 11 is allowable, dependent claims 13 and 16 are allowable as well.

The following further remarks pertain to claims 14, 15, and 17 not being obvious over Sanghera in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103:.

Claim 14 calls for, *inter alia*:

each of the heating bushes having a respective flow device configured for creating a laminar air flow in each of the heating bushes.

The Examiner alleges on page 10 of the Office action dated August 29, 2006 that "providing laminar flow is a method step and not structure." The Examiner is in error. More specifically, the claim recites that the flow device **is configured** for creating a laminar air flow in each of the heating bushings. Contrary to the Examiner's comments, the claim does not recite **providing** a laminar air flow. Instead, the claims require that the flow device is **configured** such that a laminar air flow is created. The limitation that the flow device is configured for creating a laminar air flow is a structural limitation. Accordingly, the Examiner's allegation that pertains to the limitation being a method step is in error.

It is respectfully noted that the Examiner's allegation on page 10 of the Office action dated August 29, 2006 that "Sanghera reads on the invention because it provides an opening", is not correct. More specifically, Sanghera does not disclose that the opening is configured for creating a laminar flow. It is true that the flow would be based on the size of the fiber/preform and other parameters. However, Sanghera does not consider this because Sanghera is

completely silent with respect to a laminar air flow in a heating bushing.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest each of the heating bushes having a respective flow device configured for creating a laminar air flow in each of the heating bushes, as recited in claim 14 of the instant application.

Gouronnec, Jensen, and Watts are all silent with respect to a heating bushing having a flow device that is configured to create a laminar air flow.

As seen from the above given remarks, the Sanghera reference does not disclose a flow device that is configured for creating a laminar air flow in a heating busing. This is contrary to the invention of the instant application as claimed, in which each of the heating bushes have a respective flow device configured for creating a laminar air flow in each of the heating bushes.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

On page 10 of the final Office action dated February 6, 2007, the Examiner alleges that "a recitation of the intended use of the claimed invention must result in structural differences between the claimed invention and the prior art in order to patentable distinguish the claimed invention from the prior art" (as noted above, at one point the Examiner also incorrectly considered this a method step). The Examiner's allegation is misplaced. Specifically, the recitation of the flow device configured for creating a laminar flow, is not an intended use. As noted above, the limitation is a structural limitation of the flow device that achieves a laminar flow. Therefore, the Examiner's allegations with respect to an intended use are completely misplaced. Accordingly, the allegations, which follow on page 11 are also irrelevant. Accordingly, it is kindly requested that the honorable Board disregard the Examiner's misplaced comments

Since claim 14 is allowable, dependent claims 15 and 17 are allowable as well.

Whether claim 1 is obvious over Oh in view of Gouronnec, Watts and Jensen under 35 U.S.C. §103.

Claims 1, 18, and 20 are not obvious over Oh in view of Gouronnec, Watts, Jensen, and Ishihara under 35 U.S.C. §103:

The Oh reference discloses an apparatus for overcladding optical fiber preform rod and optical fiber drawing method. Oh does not disclose a matrix configuration for disposing heating bushings.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

The references do not show or suggest the matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of the first matrix axes intersecting each of the second matrix axes within a boundary of the matrix configuration, and the heating bushes being disposed at respective crossing points of the first and second axes, as recited in claim 1 of the instant application.

As seen from the above-given remarks the Gouronnec, Jensen and Watts references do not disclose a matrix configuration for heating bushes.

As seen from the above-given remarks, Oh does not disclose a matrix configuration for heating bushings. Therefore, Oh does not make up for the deficiencies of Gouronnec, Jensen and Watts.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, the Examiner has not produced a *prima facie* case of obviousness.

Since claim 1 is allowable, dependent claims 18 and 20 are believed to be allowable as well.

Whether claims 25 and 26 are obvious over Lee or Gouronnec, Watts and Jensen in view of Holschlag and optionally Watts under 35 U.S.C. §103.

Claims 25 and 26 are not obvious over Lee or Gouronnec, Watts and Jensen in view of Holschlag and optionally Watts under 35 U.S.C. §103:

Neither Holschlag nor Watts make up for the deficiencies of Lee, Gouronnec, Jensen and Watts. Since claim 1 allowable, dependent claims 25 and 26 are allowable well.

Furthermore, it is not seen how the Examiner rejects claims 25 and 26 when independent claim 1 was not rejected over Lee.

Based on the above given arguments, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

If an extension of time is required for this submission, petition for extension is herewith made. Any fees due should be charged to Deposit Account No. 12-1099 of Lerner Greenberg Stemer LLP.

Respectfully submitted,

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Claims Appendix:

1. A device for producing optical glass fibers, comprising:

a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, said matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another, and each of said first matrix axes intersecting each of said second matrix axes within a boundary of said matrix configuration, and said heating bushes being disposed at respective crossing points of said first and second axes;

a follow-up device configured to hold and feed the preforms into said heating bushes;

a drawing and sizing installation configured to receive glass fibers drawn from the preforms in said heating bushes such that the glass fibers lie next to one another as a band when being received by said drawing and sizing installation; and

a making-up device configured to receive the glass fibers from said drawing and sizing installation.

3. The device according to claim 1, wherein said heating bushes are disposed such that said matrix configuration forms a rhomboid configuration.

4. The device according to claim 1, wherein:

said heating bushes are disposed such that respective distances between directly neighboring ones of said heating bushes on each of said matrix axes are substantially identical.

5. The device according to claim 1, wherein said heating bushes are disposed in one plane.

6. The device according to claim 1, wherein each of said heating bushes has an associated one of the preforms assigned thereto.

7. The device according to claim 1, wherein said fiber furnace has at least 110 heating bushes.

8. The device according to claim 7, wherein said matrix configuration has a first principal matrix axis and a second principal matrix axis, said matrix configuration has 10 of said heating bushes disposed in a direction of the first

principal matrix axis and has 11 of said heating bushes disposed in a direction of the second principal matrix axis.

9. The device according to claim 1, wherein said fiber furnace includes a temperature controller with individual controllers configured to individually control temperatures in said heating bushes.

10. The device according to claim 9, wherein said individual controllers have respective measuring and compensating devices for adjusting temperatures in said heating bushes in relation to temperatures in neighboring heating bushes.

11. A device for producing optical glass fibers, comprising:

a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of said heating bushes having at least one heating element and each of said heating bushes having at least one diffuser provided between said at least one heating element and a respective one of the preforms for diffusing a heating radiation , said matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with

respect to one another and said heating bushes being disposed at respective crossing points of said first and second axes;

a follow-up device configured to hold and feed the preforms into said heating bushes;

a drawing and sizing installation configured to receive glass fibers drawn from the preforms in said heating bushes such that the glass fibers lie next to one another as a band when being received by said drawing and sizing installation; and

a making-up device configured to receive the glass fibers from said drawing and sizing installation.

12. The device according to claim 1, wherein:

each of said heating bushes has a number of separately activatable heating coils; and

each of said heating bushes has at least one diffuser provided between said heating coils and a respective one of the preforms for diffusing a heating radiation.

13. The device according to claim 11, wherein:

said at least one diffuser includes a quartz glass tube; and

said follow-up device feeds the preforms such that a corresponding one of the preforms passes through the quartz glass tube.

14. A device for producing optical glass fibers, comprising:

a fiber furnace having heating bushes disposed as a matrix configuration for simultaneously receiving a number of preforms, each of said heating bushes having a respective flow device configured for creating a laminar air flow in each of said heating bushes, said matrix configuration having mutually parallel first matrix axes and mutually parallel second matrix axes disposed at an angle α of less than 90° with respect to one another and said heating bushes being disposed at respective crossing points of said first and second axes;

a follow-up device configured to hold and feed the preforms into said heating bushes;

a drawing and sizing installation configured to receive glass fibers drawn from the preforms in said heating bushes such

that the glass fibers lie next to one another as a band when being received by said drawing and sizing installation; and

a making-up device configured to receive the glass fibers from said drawing and sizing installation

15. The device according to claim 14, wherein:

said flow device includes an extension part provided at a lower portion of said respective one of said heating bushes; and

said extension part has no heating elements assigned thereto.

16. The device according to claim 11, wherein:

each of said heating bushes has a flow device for creating a laminar air flow in a respective one of said heating bushes;

said flow device includes an extension part provided at a lower portion of said respective one of said heating bushes such that said at least one diffuser and said extension part form a one-piece element; and

said extension part has no heating elements assigned thereto.

17. The device according to claim 14, wherein said flow device includes at least one flow baffle disposed at an upper end of said respective one of said heating bushes such that an annular air gap with a given gap width is formed between a respective one of the preforms and said at least one flow baffle for venting air through the annular air gap.

18. The device according to claim 1, wherein said follow-up device has a supporting plate with individual suspensions for individually receiving the preforms.

19. The device according to claim 18, wherein said individual suspensions on said supporting plate form a matrix configuration corresponding to said matrix configuration formed by said heating bushes.

20. The device according to claim 18, wherein each of said individual suspensions has a vacuum connection for connecting each respective one of the preforms to a central vacuum system.

21. The device according to claim 18, wherein:

said follow-up device includes a geared motor, a threaded spindle and a guide; and

said geared motor is configured to selectively drive and brake said supporting plate via said threaded spindle and said guide for advancing the preforms.

22. The device according to claim 18, wherein said supporting plate is configured to be manually movable into a service position.

23. The device according to claim 18, wherein said supporting plate is configured to be automatically movable into a service position.

24. The device according to claim 1, wherein said fiber furnace has a flow collar disposed at an output end of said heating bushes for creating an air cushion for a delayed cooling of the glass fibers.

25. The device according to claim 1, including a cooling zone provided downstream of said fiber furnace for cooling the glass fibers.

26. The device according to claim 25, wherein said cooling zone includes a funnel disposed upstream of said drawing and sizing installation such that the glass fibers are passed through said funnel.

27. The device according to claim 1, wherein said drawing and sizing installation includes a first size roller and a second size roller disposed such that glass fibers from a first half of said fiber furnace pass over said first size roller and glass fibers from a second half of said fiber furnace pass over said second size roller.

29. The device according to claim 1, wherein said fiber furnace is configured to receive preforms for producing multicomponent glass fibers.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.